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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/807,025	03/22/2004	Zia Ur Rehman	200315570-1	2239

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EXAMINER

SHOSHO, CALLIE E

ART UNIT PAPER NUMBER

1714

DATE MAILED: 08/10/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/807,025

Applicant(s)

REHMAN ET AL.

Examiner

Callie E. Shosho

Art Unit

1714

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 May 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6,8,9,11-19,21-26,28 and 29 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6,8,9,11-19,21-26,28 and 29 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. All outstanding rejections are overcome by applicants' amendment filed 5/18/06.

In light of the new grounds of rejection set forth below, the following action is non-final.

Claim Rejections - 35 USC § 103

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claims 1-3, 6, 8, 11-13, and 16-18 rejected under 35 U.S.C. 103(a) as being unpatentable over Parazak et al. (U.S. 6,214,100) in view of Zhu (U.S. 5,889,083) and Suzuki et al. (U.S. 6,874,881).

Parazak et al. disclose system for printing images onto substrate comprising ink jet ink and ink jet printer wherein the ink comprises water, 0.001-10% acid functionalized pigment having mean diameter of 0.005-10 μm , 0.01-50% co-solvent including 1,5-pentanediol, 2-pyrrolidone, and ethoxylated glycerol, 0.01-5% surfactant, and other acrylic or non-acrylic polymer to improve various properties of the ink. There is also disclosed a method of ink jetting the ink onto the substrate (col.1, lines 13-20, col.2, lines 35-37, col.3, lines 19-30 and 56-61, col.4, line 15, col.4, lines 41-43 and 54-56, col.4, line 64-col.5, line 1, and col.5, lines 33-40).

Attention is drawn to col.5, lines 33-40 that disclose ink comprising 3% modified pigment, 5% ethoxylated glycerol, 9% 2-pyrrolidone, 2% 1,5-pentanediol, and water. It is disclosed that the modified pigment is acid functionalized wherein the acid precursor used to form the modified pigment is isophthalic acid.

The difference between Parazak et al. and the present claimed invention is the requirement in the claims of (a) styrene-maleic anhydride and (b) printhead configured for specific firing frequency and drop volume.

With respect to difference (a), Zhu, which is drawn to ink jet ink, disclose the use of styrene-maleic anhydride binder to fix colorant to substrate wherein the binder has weight average molecular weight of 1,500-50,00. Attention is called to col.5, lines 63-65 of Zhu that discloses styrene-maleic anhydride with weight average molecular weight of 5,600 (col.4, lines 47-51 and 62-67 and col.5, line 57-col.6, line 9).

With respect to difference (b), Suzuki et al. disclose ink jet printer that ejects ink of 20 pL or less and that possesses firing frequency of 10 kHz or higher (col.10, lines 31-37) in order to produce high quality image printing at high speed (col.10, lines 31-37).

In light of the motivation for using styrene maleic anhydride disclosed by Zhu as described above and for using printer configured for specific firing frequency and drop volume disclosed by Suzuki et al. as described above, it therefore would have been obvious to one of ordinary skill in the art to use styrene-maleic anhydride in the ink of Parazak et al. in order to produce ink with good colorant adhesion to substrate, i.e. produce ink with good smudge resistance, durability, etc., and to use such printer in the system of Parazak et al. in order to produce ink that produce high quality image printing at high speed, and thereby arrive at the claimed invention.

4. Claims 4-5 and 14-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Parazak et al. in view of Zhu and Suzuki et al. as applied to claims 1-3, 6, 8, 11-13, and 16-18 above, and further in view of Osumi et al. (U.S. 6,280,513).

The difference between Parazak et al. in view of Zhu and Suzuki et al. and the present claimed invention is the requirement in the claims of ammonium benzoate.

Osumi et al., which is drawn to ink jet ink, disclose the use ammonium benzoate in order to produce waterfast image that possesses good re-ejection characteristics from the printer (col.9, lines 60-67).

In light of the motivation for using ammonium benzoate disclosed by Osumi et al. as described above, it therefore would have been obvious to one of ordinary skill in the art to use ammonium benzoate in the ink of Parazak et al. in order to produce waterfast ink that possesses good re-ejection characteristics from the printer, and thereby arrive at the claimed invention.

5. Claims 9 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Parazak et al. in view of Zhu and Suzuki et al. as applied to claims 1-3, 6, 8, 11-13, and 16-18 above, and further in view of Ohta et al. (U.S. 2002/0198287).

The difference between Parazak et al. in view of Zhu and Suzuki et al. and the present claimed invention is the requirement in the claims of trishydroxymethylaminomethane.

Ohta et al., which is drawn to ink jet ink, disclose the use of trishydroxymethylaminomethane as pH buffer in order to control the pH of the ink and to produce durable, stable ink (paragraph 107).

In light of the motivation for using trishydroxymethylaminomethane disclosed by Ohta et al. as described above, it therefore would have been obvious to one of ordinary skill in the art to use trishydroxymethylaminomethane in the ink of Parazak et al. in order to produce durable, stable ink with desired pH, and thereby arrive at the claimed invention.

6. Claims 21-23, 26, and 28 rejected under 35 U.S.C. 103(a) as being unpatentable over Parazak et al. (U.S. 6,214,100) in view of Zhu (U.S. 5,889,083).

Parazak et al. disclose system for printing images onto substrate comprising ink jet ink and ink jet printer wherein the ink comprises water, 0.001-10% acid functionalized pigment having mean diameter of 0.005-10 μm , 0.01-50% co-solvent including 1,5-pentanediol, 2-pyrrolidone, and ethoxylated glycerol, 0.01-5% surfactant, and other acrylic or non-acrylic polymer to improve various properties of the ink. There is also disclosed a method of ink jetting the ink onto the substrate (col.1, lines 13-20, col.2, lines 35-37, col.3, lines 19-30 and 56-61, col.4, line 15, col.4, lines 41-43 and 54-56, col.4, line 64-col.5, line 1, and col.5, lines 33-40).

Attention is drawn to col.5, lines 33-40 that disclose ink comprising 3% modified pigment, 5% ethoxylated glycerol, 9% 2-pyrrolidone, 2% 1,5-pentanediol, and water. It is disclosed that the modified pigment is acid functionalized wherein the acid precursor used to form the modified pigment is isophthalic acid.

The difference between Parazak et al. and the present claimed invention is the requirement in the claims of styrene-maleic anhydride.

Zhu, which is drawn to ink jet ink, disclose the use of styrene-maleic anhydride binder to fix colorant to substrate wherein the binder has weight average molecular weight of 1,500-50,00.

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Attention is called to col.5, lines 63-65 of Zhu that discloses styrene-maleic anhydride with weight average molecular weight of 5,600 (col.4, lines 47-51 and 62-67 and col.5, line 57-col.6, line 9).

Given that Parazak et al. in combination with Zhu disclose ink as presently claimed, it is clear that the ink intrinsically would be reliably jettable at a firing frequency from 12 kHz to 25 KHz.

In light of the motivation for using styrene maleic anhydride disclosed by Zhu as described above, it therefore would have been obvious to one of ordinary skill in the art to use styrene-maleic anhydride in the ink of Parazak et al. in order to produce ink with good colorant adhesion to substrate, i.e. produce ink with good smudge resistance, durability, etc., and thereby arrive at the claimed invention.

7. Claims 24-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Parazak et al. in view of Zhu as applied to claims 21-23, 26, and 28 above, and further in view of Osumi et al. (U.S. 6,280,513).

The difference between Parazak et al. in view of Zhu and the present claimed invention is the requirement in the claims of ammonium benzoate.

Osumi et al., which is drawn to ink jet ink, disclose the use ammonium benzoate in order to produce waterfast image that possesses good re-ejection characteristics from the printer (col.9, lines 60-67).

In light of the motivation for using ammonium benzoate disclosed by Osumi et al. as described above, it therefore would have been obvious to one of ordinary skill in the art to use

ammonium benzoate in the ink of Parazak et al. in order to produce waterfast ink that possesses good re-ejection characteristics from the printer, and thereby arrive at the claimed invention.

8. Claim 29 is rejected under 35 U.S.C. 103(a) as being unpatentable over Parazak et al. in view of Zhu as applied to claims 21-23, 26, and 28 above, and further in view of Ohta et al. (U.S. 2002/0198287).

The difference between Parazak et al. in view of Zhu and the present claimed invention is the requirement in the claims of trishydroxymethylaminomethane.

Ohta et al., which is drawn to ink jet ink, disclose the use of trishydroxymethylaminomethane as pH buffer in order to control the pH of the ink and to produce durable, stable ink (paragraph 107).

In light of the motivation for using trishydroxymethylaminomethane disclosed by Ohta et al. as described above, it therefore would have been obvious to one of ordinary skill in the art to use trishydroxymethylaminomethane in the ink of Parazak et al. in order to produce durable, stable ink with desired pH, and thereby arrive at the claimed invention.

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Wang et al. (U.S. 6,221,142) and Moffatt et al. (U.S. 5,891,934), similar to Parazak et al. (U.S. 6,214,100) described above, each disclose ink comprising solvent and pigment as presently claimed with no disclosure of styrene-maleic anhydride copolymer as presently claimed.

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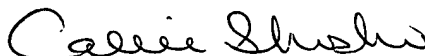
Watanabe et al. (U.S. 6,877,851 and Sago et al. (U.S. 6,709,095) each disclose ink comprising acid functionalized pigment, 1,5-pentanediol, and 2-pyrrolidone, however, there is no disclosure of styrene maleic anhydride copolymer or either ethoxylated glycerol or 2-methyl-1,3-propanediol.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Callie E. Shosho whose telephone number is 571-272-1123. The examiner can normally be reached on Monday-Friday (6:30-4:00) Alternate Fridays Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on 571-272-1119. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

CS
8/4/06


Callie E. Shosho
Primary Examiner
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